

Research Article

Correlation Analysis Method for Modern Landscape Economic Management under the Perspective of Big Data Fusion Perspective

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With rapid development of modern social economic and people's living standards, modern landscape, as the main place of adjusting urban life, can not only provide recreation places for the fast pace of urban life, but also make people's body and mind get relaxed. Therefore, the modern landscape construction and economic management is an issue worth thinking and exploration, which attracting more and more people's attention, but its economy management lacks of scientific guidance. In order to improve the quality of modern landscape economy management, by analyzing the modern landscape construction methods and economic management, the main deficiencies of the modern landscape economic management are analyzed in this paper. And big data technology is studied to improve the quality of modern landscape economic management, a correlation analysis method under the big data fusion of modern landscape economy management mode is put forward which can provide theory for improving as well as economic management pointed out the direction of the future development of modern landscape.

1. Introduction

At present, with the economic development and the continuous improvement of people's living standard, people's pursuit of life is no longer confined to the basic daily life. The quality and beauty of life are proposed in higher and higher demands. Landscape as an important part of urban development and construction not only can provide healthy environmental protection for urban residents' living space, but also can promote the city image and improve the local economic environment [1, 2].

As ecological environmental protection concept gets more and more attention from urban residents, urban landscape construction demand is also growing [3, 4]. Modern landscape economy is an important part of national economy; with improving the economic management quality of modern landscape, it will play a positive role in promoting the development of national economy [5, 6]. In modern landscape construction, the study of the patterns of economic management should focus on strengthening the landscape, realization of the demand of

the modern landscape construction, and promoting the development of urban economy [7]. Urban landscape construction is different from other projects, and it contains the production department, ecological engineering, public welfare undertakings, and other attributes [8, 9]. The construction level in the residents' life quality is closely related to a certain extent and also affects the city's economic development level [10]. After checking related research literature, we found that the modern landscape economic management still exists in the following problems [11, 12]:

- (1) Lacking of a long-term planning, many cities tend to appear in the process of landscape construction from the actual situation, to develop a plan of the construction of irrational and a serious impact on the landscape economic benefit at the same time. Some cities lack sufficient preparation work during the garden construction project, resulting in various obstacles that slow down the progress and affect the quality in the early stage of garden construction. After completion of the landscape construction

projects, the lack of long-term planning leads to frequent changes to the original project, which will increase the unnecessary costs. In addition, many garden construction workers lack of comprehensive ability, and it is easy to fail to take into account the trend of economic and social development and urban sustainable development when designing the construction scheme based on experience. This also directly leads to frequent problems in the economic management of garden construction, and the economic benefits are also significantly affected.

- (2) The management consciousness. According to the concept of energy conservation and environmental protection, in progress of modern landscape construction in some cities, modern landscape construction engineering scheme needs scientific and reasonable design, which should consider the actual situation of urban development. Currently, there are different degrees of land shortage in many cities, and how to utilize the limited space for landscape construction is a problem. At present, some managers lack awareness of environmental protection and neglect management, resulting in a serious waste of resources in garden construction and management, which not only affects the overall image of the city but also makes it difficult to carry out garden economic management.
- (3) Lack of a perfect management system. Landscape economy management system is poor, which is one of the main factors for the development of modern urban landscape construction [13, 14]. They mainly reflect as follows:
 - (A) In the progress of modern landscape construction, the construction management is responsible and planning is poor. Therefore, it cannot communicate well between the various departments and construction, which makes a lot of resources lost and difficult to get reasonable deployment and application in the process of construction.
 - (B) Some departments cannot consider landscape construction problems in a macroscopic angle, which leads to good management plan and cannot be effectively executed in actual. And results in the construction contents and construction behavior are difficult to get specification, which affects the construction quality and economic benefit of modern landscape.

Through introducing above, we know that economic management efficiency quality of modern landscape has a direct influence on the city's economic development. In order to improve the economic management level of modern landscape architecture, this paper studies application of the big data on economic management mode correlation analysis of modern landscape architecture. For optimization economic management model, the

understanding of modern landscape architecture is studied in this paper, and the inherent law among economic management quality is found, which provides a theoretical support to promote the economic management quality of modern landscape [15].

The main content and structure of article are as follows: Section 1, Introduction, provides a brief introduction to the related research status about modern landscape economic management and its deficiencies. Section 2, Related Works, introduces the main content of the modern landscape economy management and improves economic efficiency management measures of modern landscape and modern landscape economic management under the big data fusion perspective. Section 3 discusses modern landscape economy management method, the correlation analysis theory and its application in modern landscape economic management, and development direction of modern landscape economic management in the future. Section 4, Conclusions, summarizes the work of the full text, and several useful conclusions are obtained.

2. Related Works

In order to overcome economic management deficiencies of the modern landscape architecture mentioned above, the main content of this section is the modern landscape economy management and the application of big data technology in modern landscape architecture [16, 17].

2.1. Main Content of the Modern Landscape Economic Management. Figure 1 shows the main content of modern landscape economic management.

Figure 1 shows that the main contents of modern landscape construction are management of construction input, operation management, performance management, etc. And management of construction input can be divided into the planning of construction regional, project design, urban development, and cost evaluation of project design; operation management can be divided into cost of health cleaning and maintenance, marketing strategy formulation, and investment; performance management can be divided into the spending and revenue management, benefit management income distribution planning, and attracting investment policy [18, 19].

2.2. Measures to Improve Economic Management Level of Modern Landscape. In order to overcome the problems of low level of modern garden economic management caused by lack of long-term plan, weak management consciousness and lack of perfect management system are pointed out in Section 1 of the article. The following measures are adopted to improve the level of landscape economic management [20, 21]:

- (1) The work plans. At the beginning of the modern landscape planning decision-making stage, it is important to do a good job of planning economic management. At the early stages of the decision-

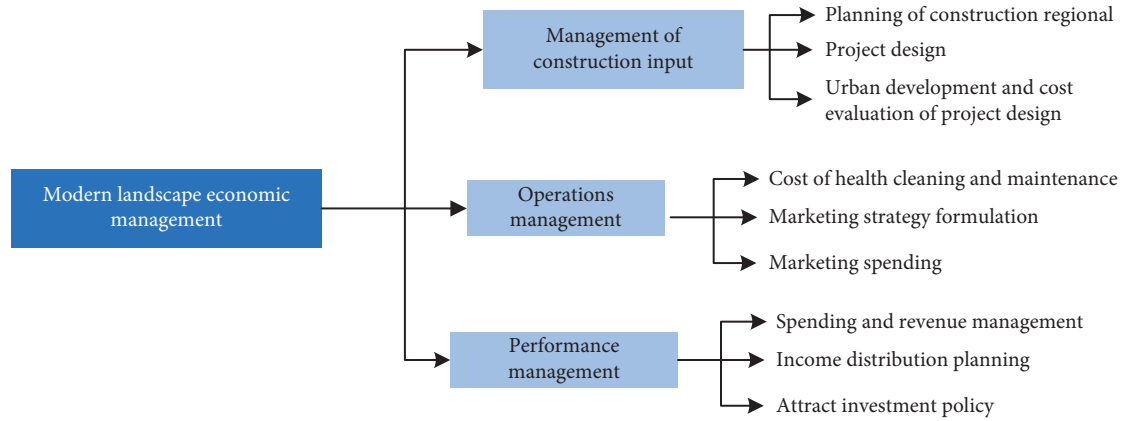


FIGURE 1: Main contents of modern landscape economic management.

making stage, relevant departments should be organized to survey the city and fully understand the development planning of the local characteristics, climate characteristics, the ecological environment, etc., and in-depth analysis and research to locate the most reasonable landscape construction. When determining the place of the modern landscape construction, in order to avoid unreasonable planning activity for landscape construction of basic facilities such as cultural relics or damage, the sites, underground pipeline, and residential and commercial elements involved in the construction area should also be relics. After complete landscape construction planning, we should also deal with the overall planning content, to ensure that the modern landscape construction to reach the expected goal.

- (2) Improving economic management level. The landscape economy management process often uses it as a simple project or process project, and ignored the economic management of it; the economic management of landscape work is obviously unfavorable and creates economic benefits. Therefore, during modern landscape engineering construction, it is important to strengthen management consciousness, make landscape economic management employees fully understand that the economic management plays an important role in the process of promoting local economic development, and actively improve their level of economic management. It shows that by reasonable operation and management methods can promote the development of landscape economic management work. At the same time, the management department of the local government on garden construction should also reasonably plan and organize the training of professional technology and theoretical knowledge for garden economic management staff so as to ensure that they can take effective methods to improve the level of garden economic management in the development of modern garden economic management.
- (3) Modern landscape planning and construction work should be according to the development of city.

There are close relations between modern landscape construction and urban development, because modern landscape not only provides relaxation and fitness places for urban residents, but also is an important part of urban development and construction. As a result, the planning and construction of modern landscape should adhere to economic development in the local market as the guidance, in order to develop economy; the new development and construction of landscape engineering investment project management work should be according to the development of city.

- (4) Improving the system of relevant laws and regulations. It lacks relatively perfect system in modern landscape construction nowadays, makes the modern landscape construction activities with no clear responsibility division and subsequent landscape economic management, and also appears all kinds of contradictions. Therefore, we should perfect the relevant laws and regulations of the construction of the modern landscape, clear responsibility division landscape construction management, and construction management, adopting the measures to provide quality assurance for the modern landscape construction, to ensure the landscape economic management efficiency.

2.3. Application of Big Data in Economic Management of Modern Landscape. Big data is a product of the development of network information technology, which refers to a series of services of the data for the floorboard of the industry [22, 23]. Big data technology mainly contains the data content, data services, and software and hardware manufacturing. It is based on Internet and the Internet of things such as channel widely, data storage, on the basis of a large number of data resource collection value refined, intelligent information processing, and distribution services [24, 25].

With more and more network data, enterprises need to gradually increase the amount of data processing. The increasing data increase enterprise data processing difficulty

and reduce the credibility of the enterprise by using data analysis. Big data technology is used to collect, filter, and data processing for enterprises. By analyzing of the data storage and powerful technology, it can reduce the workload and improve the analysis speed and credibility [26, 27].

With the innovation development of big data technology, it has been applied in many fields and provides power to promote the sustainable economic development. In the era of big data, economic management field also faces a certain impact and challenges. If the big data technology is used in modern economic management reasonably, it will have a positive role in promoting economic development of the related industries and the whole society. The application of the big data technology innovation and development for enterprises and related organizations will promote their economic management continuously [28, 29].

Figure 2 shows the main application of the big data technology in the modern landscape economic management.

Figure 2 shows that the main application of big data technology in the modern landscape economic management has a direction of capturing requirements, precision marketing, reducing management risk, and operation optimization accurately. Among them, the precise capturing requirements refer to the technology applied to big data analysis and grasping people's needs in the modern landscape architecture, urban development, and the demand for modern landscape and modern landscape existing basis. Application of big data technology in precision marketing refers to the help of modern landscape in cross-selling, within the modern landscape on facilities for citizens in personalized recommendation and analyzed combing citizen demand. Application of big data technology in reducing risk management refers to establish risk assessment system and evaluate economic risk. Application of big data technology in operation optimization refers to optimize modern landscape corresponding upgrade plan and design operations to stimulate consumption [30, 31].

Big data technology applied in the modern landscape economic management mainly includes the advantages of using big data technology in modern landscape economic management mainly in the following respects:

- (1) Improving the employees' cognitive on economic management thinking, application of big data technology in modern landscape economic management will constantly improve economic management level of modern landscape, enhance its benefit, and promote its healthy development. Therefore, it is an important measure to improve the vitality in modern landscape. Through application of big data, the all participants of modern landscape should constantly perfect the concepts of data and improve cognitive thinking about big data economic management.
- (2) Improve the economic management system based on big data. In order to make better use of big data in economic management, modern gardens should improve the economic management mechanism based on big data, provide institutional guidance for their economic management, and ensure that the application of big data technology in the operation of modern gardens is more standardized and reasonable. Establishing a management system based on the technology of big data should deal with economic data collection, data and feedback as the main target, effective modern landscape planning, and construction and operation of information data. Process corresponding data, establish an effective information early warning system, predict and warn abnormal data, and help reduce risks. It also needs to set up the system of dealing with emergencies, so that can effectively handle when problems occur, and help modern landscape better solve the problems.
- (3) Improving the working ability and knowledge accomplishment of employees, in the era of big data, high-quality talent is the important power, which can promote the sustainable development of modern landscape architecture in the process of economic management. It should be constantly on the depth of staff training and improve the relevant professional skills training, employee job skills, and knowledge accomplishment. In the process of training, employees should pay attention to study the situation of information technology, familiar with computer technology and Internet technology and give full play to the big data technology the promoting function of economic management in modern landscape architecture.
- (4) Enhancing the strength of data analysis, using big data technology in the modern economic management can provide greater impetus to economic development. The strength of data analysis should be enhanced in modern botanical landscape economic management, and the important role of data also should be gotten close attention to. In the process of application of big data technology in dealing information, mathematical model of modern landscape economic management should be built and the information should be perfect base of processing the data, which used to produce a variety of data collection and processing. The analyzed results are transmitted to the network information base through Internet technology.
- (5) Establish a risk early warning system, improve the use efficiency of modern garden funds through the application of big data technology, reduce the loss of funds, and provide financial security for modern gardens. When establishing the risk early warning system, the big data technology is applied to monitor the garden market risks, predict the risks in a timely and accurate manner, and take targeted solutions according to the risks to reduce unnecessary economic losses. In addition, the modern landscape management should follow era economic

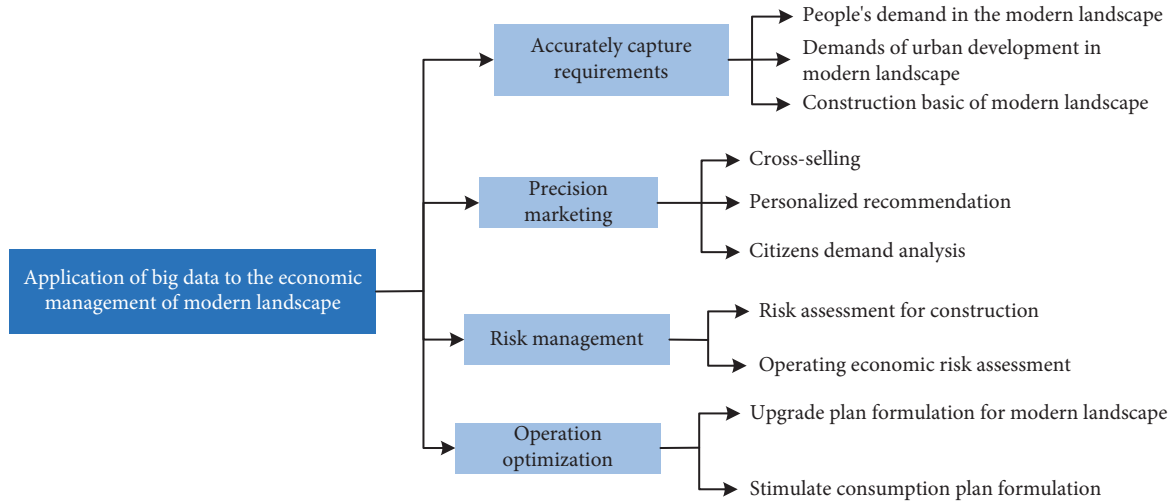


FIGURE 2: Main application of the big data technology in the modern landscape economic management.

development, get rid of the traditional financial model, raise the ideological cognition, update to improve financial concept, and improve the ability to identify and respond to risk.

By analyzing the application of big data technology in the modern landscape of the above several aspects, we know that in the process of daily operation and management of modern landscape architecture, the big data technology can provide scientific, reasonable, and effective decisions. In addition, the application of big data can help managers to deal with problems appeared in the process of modern landscape economic management, making corresponding measures due to different kinds of problems, which will be more accurate and reasonable than traditional economic management mode of decision-making, reduce the decision risk, and improve the quality of modern landscape economic management.

3. Economic Management Method of Modern Landscape

3.1. *Correlation Analysis Theory.* Definition of correlation analysis for a particular type of event is to merge and transform multiple events of the same type merged into one with more information. So, they can more accurately locate events of nature.

Figure 3 shows the correlation analysis framework structure of application of big data method.

Figure 3 shows the application of the method of network connection and network monitoring collection for events and storing them in the corresponding event in the library. Then, according to the event weighted association rules, the corresponding rule base is determined, and the jointly configured database and correlation analysis engine are used for fuzzy reasoning to find the internal rules of events and describe them in practice [32].

An event a with a set $\{a_1, a_2, \dots, a_k\}$ of some sort of attack can be represented as

$$a \Rightarrow \{a_1, a_2, \dots, a_k\}. \quad (1)$$

To summarize event correlation research results, we know that correlation analysis methods are mainly the following kinds:

- (1) Compression type, all events with high similarity, they can be simplified compression as a representative of one event type, and formula is expressed as

$$[A, A, \dots, A] \Rightarrow A. \quad (2)$$

- (2) Filter type, if the probability $P(A)$ of event A occurs, it does not belong to the provisions of the legal value of the collection H , which makes filtering processing the event.

$$[A, P(A) \notin H] \Rightarrow \emptyset. \quad (3)$$

- (3) Conservation type, in the premise incident cases C , event A does not occur, which means suppress A event.

$$[A, C] \Rightarrow \emptyset. \quad (4)$$

- (4) Count type, the same event repeats to set statistics and threshold method, for example, with B instead of n times repeated A events.

$$[n \times A] \Rightarrow B. \quad (5)$$

- (5) Temporal type, sequence of events occurs; if events A and B occur in sequence, event C will happen. The temporal relationship between events with symbol T is

$$[ATB] \Rightarrow C. \quad (6)$$

- (6) Generalized or specialized type, with A super-fan set instead of events A . Its expression is

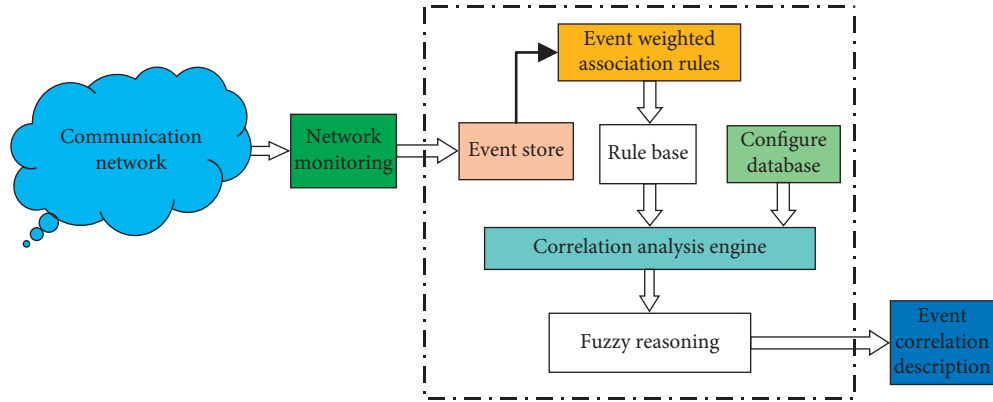


FIGURE 3: Correlation analysis framework structure of application of big data method.

$$[A, A \subset B] \Rightarrow B. \quad (7)$$

(7) Specialized type, with A specific subset instead of events A. Its expression is

$$[A, AB] \Rightarrow B. \quad (8)$$

The above, several kinds of typical type handling methods and mathematical expressions have been introduced in this paper.

The pattern research of big data technology applied to the modern landscape economic management is carried out, based on the analysis of several typical-related events in the above. The neural network method is used to determine the correlation weight between economic management modes. From the perspective of bionics, simulate the operation mode of the human brain nervous system so that it has the ability of perception, learning, and reasoning like the human brain. In the neural network, the memory information is stored in the connection weight, which can be accomplished by means of repeated training at the time of the next input information, by connecting to stimulate the corresponding neurons, so as to achieve the purpose of automatic identification.

In neural network model structure, there are many factors that can affect the economic management level of modern landscape. They mainly include as follows: how to synthetically evaluate the degree of important relationship between influencing factors, and it is concluded that reflect the weights among various factors, which is one of the difficulties in study. Using the neural network method to classify influence factors, then the corresponding weights are obtained. First of all, according to the number of the selected factors influencing to determine the number of neurons in the neural network, according to the number of categories, binary neural network is selected to identify the input. Then, the biggest impact of the economic management of modern landscape factors is chosen as input neurons and the output of the neural network classification for different levels of weight.

Figure 4 shows the schematic of binary neural network classifier.

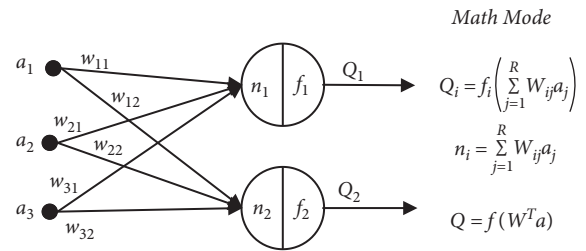


FIGURE 4: Schematic of binary neural network classifier.

From Figure 4, $R = 1, 2, 3; i = 1, 2; R, i$ are the numbers of input and output vectors, respectively. Figure 4 shows that quantitative description, at the input of the neural network connection power of the neural network, and the transfer function are determined in the binary neural network model.

The neural network input with vector can be written as

$$P_1 = \begin{bmatrix} a_{11} \\ a_{12} \\ \vdots \\ a_{1m} \end{bmatrix}, \dots, P_n = \begin{bmatrix} a_{n1} \\ a_{n2} \\ \vdots \\ a_{nm} \end{bmatrix} \quad (9)$$

$$a_{n \times m} = \begin{bmatrix} a_{11} & a_{12} & \cdots & a_{1m} \\ a_{21} & a_{22} & \cdots & a_{2m} \\ \vdots & \vdots & \ddots & \vdots \\ a_{n1} & a_{n2} & \cdots & a_{nm} \end{bmatrix} = \begin{bmatrix} P_1^T \\ P_2^T \\ \vdots \\ P_n^T \end{bmatrix}.$$

Neural network weight available formulas are as follows:

$$W_{m \times 1} = \begin{bmatrix} w_1 \\ w_2 \\ \vdots \\ w_m \end{bmatrix}. \quad (10)$$

The net input of the neural network available formula is expressed as

$$n = a \cdot W + b = \begin{bmatrix} P_1^T \\ P_2^T \\ \vdots \\ P_n^T \end{bmatrix} \bullet \begin{bmatrix} w_1 \\ w_2 \\ \vdots \\ w_m \end{bmatrix} + b. \quad (11)$$

The output of the neural network available formula is expressed as

$$\begin{aligned} Q &= f(n) \\ &= f(a \cdot W + b) \\ &= f \left(\begin{bmatrix} P_1^T \\ P_2^T \\ \vdots \\ P_n^T \end{bmatrix} \bullet \begin{bmatrix} w_1 \\ w_2 \\ \vdots \\ w_m \end{bmatrix} + b \right). \end{aligned} \quad (12)$$

In formula (12), f represents the transfer function of the neural circuits.

This section mainly introduced the commonly used several correlation analysis theories, combining with the characteristics of modern landscape construction and economic management to carry on the correlation analysis.

3.2. Correlation Analysis for Modern Landscape Economic Management. Based on the characteristics of modern landscape economic management and the commonly used correlation analysis theory, the modern landscape key indicator of economic management quality and the main influence factors are combed. Among them, the key indicators of economic management quality mainly include the modern landscape affecting urban vitality, operating expenses, the influence of the modern landscape, economic benefits, and the market dynamic vitality of modern landscape architecture. Main factors that affect modern landscape economic management quality are the expansion of modern landscape architecture scale, marketing costs, staff level of economic management level, system standardization, etc.

Figure 5 shows the correlation relationship between modern landscape expansion ratio and urban vitality, operating expenses.

Figure 5 shows that the expansion of modern landscape architecture increases the city vigor and reduces marketing cost efficiency score. That is, the expansion of gardens will increase the urban vitality and improve the benefit score, but the increase of operating costs will reduce the overall economic benefit score. Therefore, in the process of garden expansion, it is necessary to comprehensively focus on the impact of the proportion of modern garden expansion on the above two key indicators affecting the quality of garden economic management.

Figure 6 shows the correlation relationship between the operating costs and benefits, influence of modern landscape.

Figure 6 shows that with the increase of marketing costs, (1) the influence of the modern landscape and economic

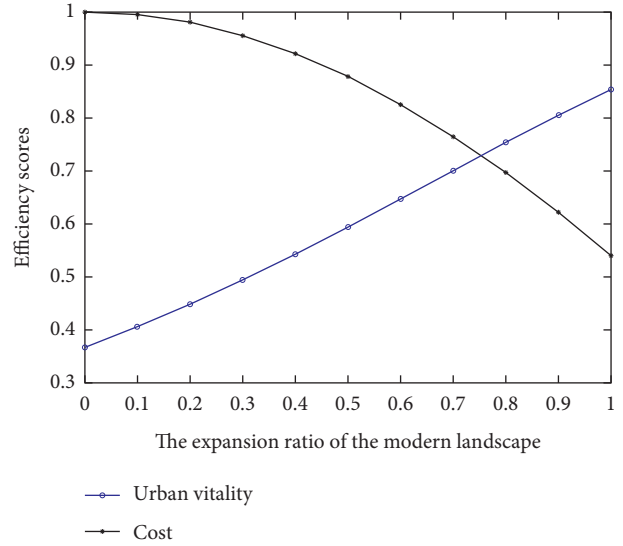


FIGURE 5: Correlation relationship between modern landscape expansion ratio and urban vitality, operating expenses.

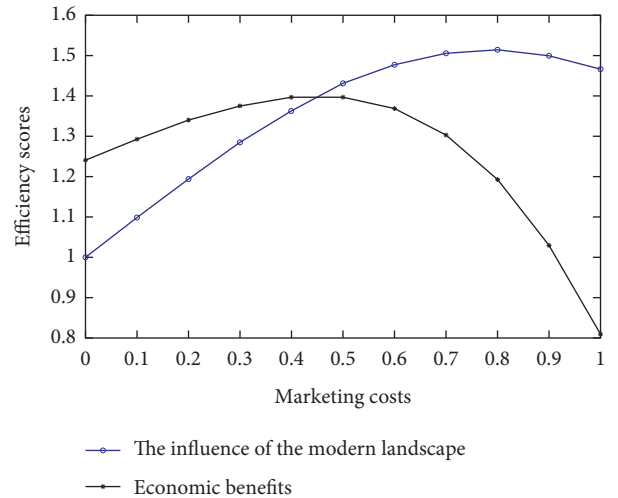


FIGURE 6: Correlation relationship between the operating costs and benefits, influence of modern landscape.

benefits first increases and then decreases, (2) the influence of the modern landscape first held steady increase rapidly after the slowdown, (3) the modern landscape rapidly declines after the first the steady increase of economic benefits and suggests that appropriate increase of the modern landscape marketing costs can improve the economic benefits of landscape, but unfavorable excessive.

Figure 7 shows the correlation relationship between the level of economic management staff and economic benefits, costs of modern landscape.

Figure 7 shows (1) the steady increase of economic benefits of modern landscape, with the improvement of employees' economic management level. (2) marketing cost is increased after the first decreases, and show that at the early stage of the economic management level employees, for employees to improve the management level of training and

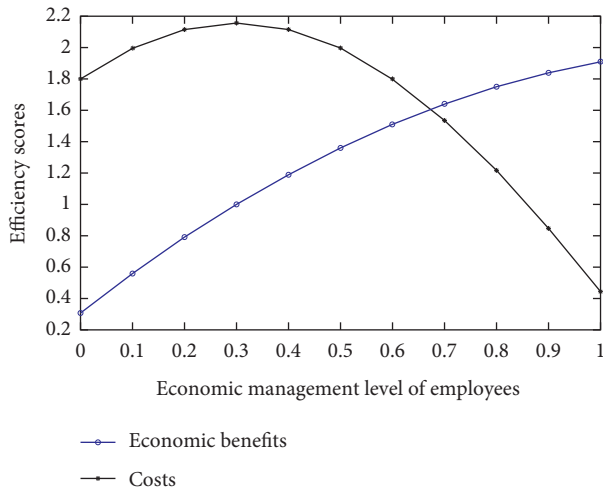


FIGURE 7: Correlation relationship between the level of economic management staff and economic benefits, costs of modern landscape.

other activities will increase the marketing of modern landscape architecture; When employees after the economic management level to a certain level in ascension, will gradually reduce the marketing cost of the modern landscape.

Figure 8 shows the correlation relationship between system standardization level and energy, economic benefits of modern landscape.

Figure 8 shows that with the improvement of institutional standardization, the economic benefits and market vitality of modern gardens show a trend of increasing first and then decreasing. This shows that the system of modern landscape standardization can improve to a certain extent its economic benefits and market dynamics, and economic management standardization, but modern landscape architecture for flexible operation will damage efficiency of economic activities and market dynamics.

Figure 9 shows the relationship between modern landscape expansion ratio and pay for the marketing, economic comprehensive score.

Figure 10 shows the relationship between the level of economic management and standardization level, economic benefit scores of the modern landscape.

From Figures 9 and 10, the modern landscape economic management is the quality of the expansion of the scale, marketing costs by modern landscape architecture investment, staff management level and economic system to the level of standardization, and a nonlinear correlation relationship between them. Therefore, when formulating relevant policies and systems to improve the economic benefits of modern gardens, it is necessary to comprehensively consider and weigh various influencing factors.

3.3. Future Development of Modern Landscape Economics Management. Based on the development status of modern gardens and their economic management combed above, in order to better serve cities and urban residents, efforts should be made from the following aspects: (1) more

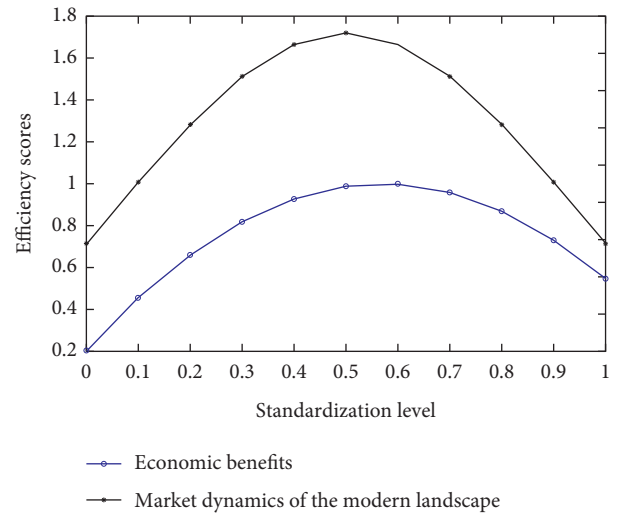


FIGURE 8: Correlation relationship between system standardization level and energy, economic benefits of modern landscape.

emphasis should be placed on the development and improvement of agricultural production level. At present, under the background of rural revitalization strategy and urban-rural integration development, the landscaping projects in small and medium-sized cities have developed towards the trend of combining with agricultural production. Therefore, The adjustment of agricultural production structure has also become a general trend. Through these measures, economic structure becomes diversified, small and medium-sized cities to achieve better economic benefit, and the economic benefits of small and medium-sized cities, in turn, will promote landscaping engineering construction level to further improve, to achieve a virtuous cycle. The next, small and medium-sized city's landscaping will present diversified development, heading for suburb and outer suburb landscape greening trend of development, to ensure that agricultural producers benefit from it. (2) the maintenance management tends to be legalized. In order to ensure the long-term and stable operation of landscape engineering projects in small and medium-sized cities, it is essential to do a good job of maintenance management. According to the current relevant laws and regulations, no one is allowed to damage trees and erode the green space at will. For trees and the green space, the ownership of the problem is not the first priority, the key lies in the trees, and the green space is an important part of greening system. Therefore, the maintenance management work toward legalization is the inevitable developing trend of landscaping field. (3) diversified development. At present, the urban greening industry has become an emerging industry. The investment behavior of landscaping and the consumption behavior of urban residents on landscaping is based on the market economy. The components of the greening market have also changed from the previous separate municipal departments to various ownership enterprises. These enterprises have carried out a series of business activities through planning and design, greening construction, greening maintenance and providing tour services. This has diversified the operation direction of

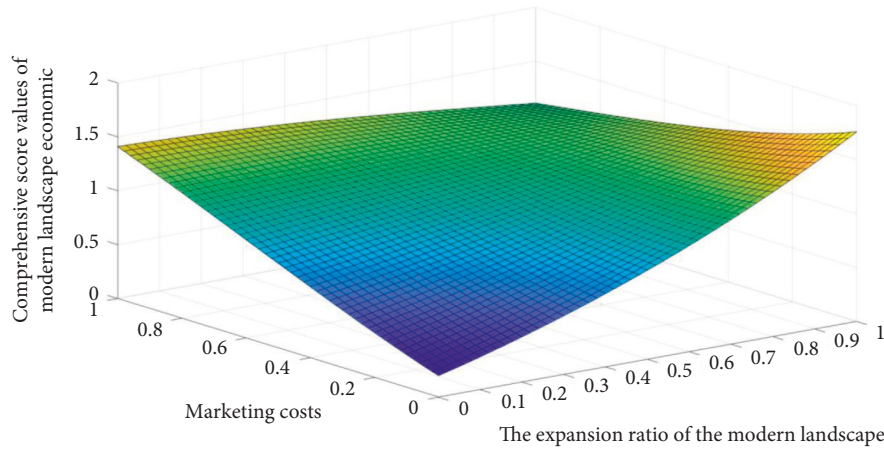


FIGURE 9: Relationship between modern landscape expansion ratio and pay for the marketing, economic comprehensive score.

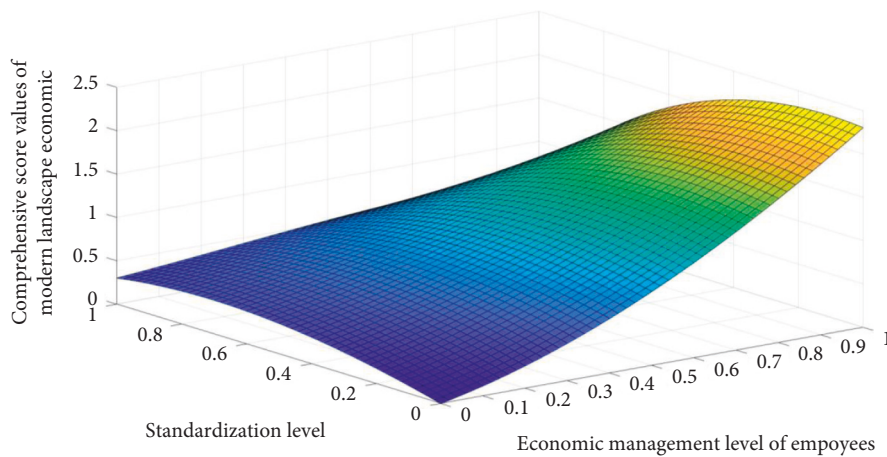


FIGURE 10: Relationship between the level of economic management and standardization level, economic benefit scores of the modern landscape.

the greening industry and expanded its business scope to the city and the province, thus promoting the continuous improvement of the economic management level of landscape greening in small and medium-sized cities.

4. Conclusions

Modern landscape plays an important role in adjusting urban life, and its economic management problems get more and more attention from people. But there is no science economic management theory for modern landscape architecture. Aiming at this problem, application of big data technology in the modern landscape economic management is studied in this paper, that is, correlation analysis methods among modern landscape economy management modes under the perspective of big data fusion. Through studying, it is found that the key indicators of economic management modern landscape quality mainly include the landscape of urban vitality, the influence of operating expenses, the influence of the modern landscape, economic benefits and the market

dynamic vitality of modern landscape architecture, etc. And main factors affecting the quality of modern landscape economic management include the expansion of the scale of modern landscape architecture, marketing costs and staff level of economic management level and system standardization, etc. Based on the above, the correlation analysis theory is used to analyze the correlation of different factors on the critical index of the relationship, and finally with the support of big data technology, the modern landscape economy management quality comprehensive score optimization is studied. It helps to improve the management economic level of modern landscape, provides theoretical guidance for modern landscape architecture economic management, and points out the direction of future development for modern landscape economy management.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

The authors declare that they have no conflicts of interest or personal relationships that could have appeared to influence the work reported in this paper.

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